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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,476

07/18/2006

Makoto Iida

128768

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25944 7590 06/08/2009  
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EXAMINER

RAO, G NAGESH

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

06/08/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,476	<b>Applicant(s)</b> IIDA, MAKOTO	
	<b>Examiner</b> G. NAGESH RAO	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 9-28 is/are pending in the application.
- 4a) Of the above claim(s) 27 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/18/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1) Claims 27-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 3/27/09.

Applicant's election with traverse of claims 9-26 in the reply filed on 3/27/09 is acknowledged. The traversal is on the ground(s) that there is a common feature between claims 9 and 27 referring to the means for determining a cut position based on oxygen concentrations in the ingot. This is not found persuasive because claim 9 does not require the particulars of the "distribution data in a database" to determine the cut position for the ingot. Furthermore claims 27-28 are directed to an apparatus/system which functions in the capability of processing semiconductor ingots and not limited to working on that material solely, it could work on ceramic ingots or polymeric blocks of material being sliced (recitation of intended use) as compared to the method of producing semiconductor wafers (Group I).

The requirement is still deemed proper and is therefore made FINAL.

***Priority***

2) Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 2/3/04. It is noted, however, that applicant has not filed a certified copy of the Japan 2004-026887 application as required by 35 U.S.C. 119(b).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3) Claims 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim,

and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, claim 9 recites the broad recitation "...the oxygen concentration is maximum **or** minimum in a range of a predetermined length..., and the claim also recites "...the oxygen concentrations being maximum and minimum at both ends thereof..." which is the narrower statement of the range/limitation. This statement is also unclear because how is it possible that the range be both maximum and minimum at the same time, given that it can either be one or the other in a range a few lines above in the same claim.

Claims 10-11 also make reference to the "maximum and minimum" term with respect to the oxygen concentration limitation from independent claim 9. Like the aforementioned rationale, examiner is unclear as to how this term can be accomplished in the currently claimed invention.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4) Claims 9-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyoshi (JP 2002-174593) in view of Kenji (JP 11-278983).

With respect to claims 9-14 Kiyoshi 593 pertains to a method of evaluating and cutting a single crystal ingot, whereby Kiyoshi 593 teaches evaluating the single crystal ingot (which was grown for the purpose of being cut into semiconductor wafers (Sections 0001-0002), whereby the ingot's oxygen concentration is measured via IR or FTIR technology before being cut. A predetermined value (which examiner is construing as the maximum or minimum value) of oxygen concentration is sought for measurement in a predetermined length of an ingot, for being the point to cut a block of the ingot out. The ingot is cut in a perpendicular direction to the growth axis (See Sections 0006-0010 and Figure 1), where presumably the block having met satisfactory predetermined conditions (i.e. based on the oxygen concentration value) and thus will be cut into wafers.

However Kiyoshi 593 does not explicitly state that the ingot is cut into blocks (plurality of block), and whereby the blocks are each sliced, thus producing semiconductor wafers.

In the same field of endeavor of evaluating and preparing single crystal ingots for cutting and preparing into wafers, Kenji 983 discloses that it is known in the conventional prior art to generally process the ingot after grown, by cutting into a plurality of blocks which are examined based on the oxygen concentrations in the

block and proceeded thereafter meeting satisfactory requirements to be cut into wafers (See Sections 0002-0009).

It would therefore be obvious to one having ordinary skill in the art at the time of the present invention to recognize the obvious incorporation of Kenji 983's prior art description with that of Kiyoshi 593 with respect to having multiple blocks cut from the ingot as a means for rapid production and processing of the single crystal ingots for wafer production.

With respect to claims 15-17 Kiyoshi 593 fails to address the continued processing based on whether the oxygen concentration range is met, and thus the block is either proceeded to be cut from the ingot or another sample is further sliced.

In the same field of endeavor of evaluating and preparing single crystal ingots for cutting and preparing into wafers, Kenji 983 discloses that it is known in the conventional prior art to generally process the ingot after grown, by cutting into a plurality of blocks which are examined based on the oxygen concentrations in the block but that if a sample cut is not of satisfactory conditions, another sample is sought thereafter (See Sections 0002-0009).

It would therefore be obvious to one having ordinary skill in the art at the time of the present invention to recognize the obvious incorporation of Kenji 983's



prior art description with that of Kiyoshi 593 with respect to having multiple blocks cut from the ingot as a means for rapid production and processing of the single crystal ingots for wafer production.

With respect to claims 18-26, Kiyoshi 593 discloses that the single crystal silicon ingot, worked upon to produce semiconductor wafers, may have a diameter of 150 mm or less or 300 mm or more, satisfying the limitation of the claimed invention pertaining to the silicon ingot single crystal material (See Section 0015-0016).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. NAGESH RAO whose telephone number is (571)272-2946. The examiner can normally be reached on 8:30AM-5PM (INDEPENDENT FLEX SCHEDULE).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MIKHAIL KORNAKOV can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. Nagesh Rao/  
GAU-1792 Patent Examiner